



FRESHWATER BIODIVERSITY IN THE LAKE VICTORIA BASIN – PRIORITIES FOR CONSERVATION ACTION

THE ISSUE

The Lake Victoria Basin is internationally recognised for its high levels of freshwater species diversity and endemism, which are of critical importance to local livelihoods and national economies within the basin. However, freshwater ecosystems within the region are also highly threatened, with current safeguards proving inadequate and the focus of much past and ongoing conservation work in the region focussing on terrestrial ecosystems. Given the unique and diverse nature of freshwater species within the basin, the dependence of rural communities and regional economies on these species, and the high levels of threat, there is a clear need for a stronger focus on conservation of freshwater biodiversity.

The information summarised here and presented in full report provides the most comprehensive and up-to-date information on the conservation status, distribution, climate change vulnerability and livelihoods value of freshwater species within the Lake Victoria Basin, and on the distribution of important sites for freshwater biodiversity within the region.



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KEY MESSAGES

- > **76% of freshwater species endemic to the basin are threatened with extinction, and the risk of species extinctions is increasing.** Without immediate action, much of this unique biodiversity will be lost and the livelihoods of many people in the basin will be negatively impacted.
- > **Pollution, biological resource use, agriculture and invasive species are the primary threats to freshwater species within the basin.** Additionally, the region's freshwater fishes are particularly vulnerable to climate change.
- > **There is a severe lack of basic information on the distribution and status of many freshwater species within the basin.** Baseline surveys and long-term monitoring programmes for freshwater species are urgently required to support management of this important but neglected biodiversity resource.
- > **Freshwater biodiversity is poorly represented within protected areas in the basin,** and where freshwater species are present management actions often fail to consider their conservation. It is recommended that protected areas are designated and managed for the conservation and sustainable use of freshwater species.
- > **39 freshwater Key Biodiversity Areas (KBAs) have been identified and represent important sites for the global persistence of freshwater biodiversity.** Site-scale conservation, focussed on freshwater KBAs, can help to guide conservation of freshwater species in the region.
- > **A critical sites network for freshwater biodiversity in the Lake Victoria Basin has been identified.** This network builds on the existing protected areas, KBAs and Ramsar sites networks. We recommended this network is used as a scientific basis to guide development and expansion of the existing protected areas network in the basin to better represent threatened and climate change vulnerable freshwater species.
- > **Management of land and water resources needs to consider impacts to freshwater biodiversity.** Implementation of Integrated River Basin Management and Environmental Flows methodologies are crucial to maintain the quality, quantity and timing of water flows required to sustain healthy freshwater systems.
- > **Periodic update of species Red List assessments and monitoring of KBAs** will enable trends in the projected overall extinction risk of freshwater species to be tracked and help inform managers on the effectiveness of any management interventions.

FIND OUT MORE:

- Read and download the full report 'Sayer, C.A., Máiz-Tomé, L. and Darwall, W.R.T. (2018). *Freshwater biodiversity in the Lake Victoria Basin: Guidance for species conservation, site protection, climate resilience and sustainable livelihoods*. Cambridge, UK and Gland, Switzerland: IUCN' from the IUCN library or here: www.iucn.org/theme/species/our-work/freshwater-biodiversity/freshwater-publications
- Contact the IUCN Freshwater Biodiversity Unit at freshwater.biodiversity@iucn.org

SPECIES FOCUSED RESULTS

SPECIES AT RISK OF EXTINCTION - IUCN RED LIST ASSESSMENTS

The extinction risk of 651 species of freshwater decapods (crabs, crayfish and shrimps), fishes, molluscs, odonates (dragonflies and damselflies) and aquatic plants was assessed. Please note: the several hundred undescribed species of haplochromine cichlid were not assessed and the levels of endemism and threat will, therefore, be considerably higher than reported here.

31% of these species are endemic to the Lake Victoria Basin, with levels of endemism particularly high amongst the fishes (78%) due to the large haplochromine cichlid species community of Lake Victoria.

20% of freshwater biodiversity native to the Lake Victoria Basin is considered threatened – being assessed as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU), and excluding Data Deficient (DD) and Extinct (EX) species from the total. **A staggering 76% of the region's endemic freshwater species is threatened.**

Due to a lack of basic information, it was not possible to assess the extinction risk of 13% of native species (assessed as DD) and 38% of endemic species. Additionally, 8% of native species and 26% of endemic species are tagged as Possibly Extinct. **Systematic biodiversity surveys and monitoring are urgently required.**

Figure 1 - IUCN Red List Categories

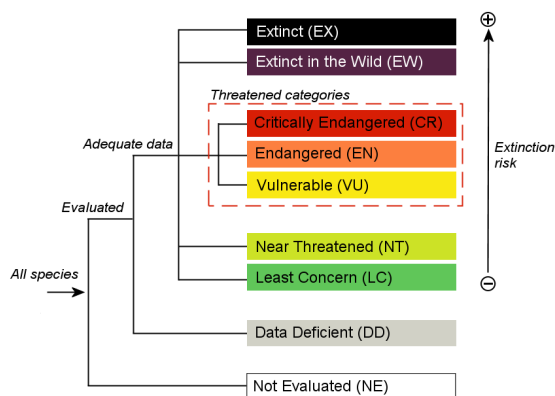
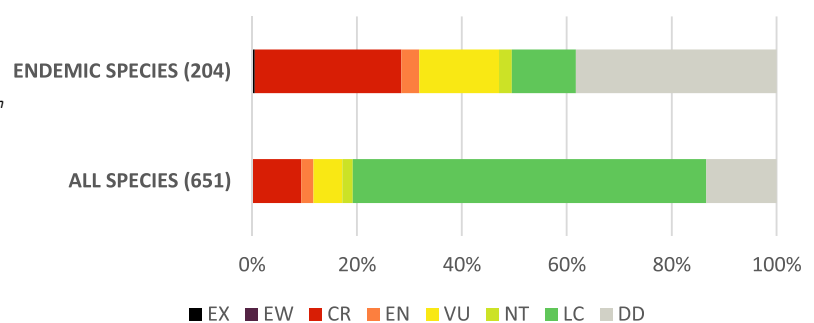


Figure 2 - Extinction risk of all described freshwater species assessed, shown as the percentage of species in each IUCN Red List Category



RISING RISK OF SPECIES EXTINCTIONS - IUCN RED LIST INDEX (RLI)

Red List Indices (RLIs) indicate that freshwater biodiversity in the Lake Victoria Basin is in decline and **the risk of species extinctions is increasing**. The situation is particularly dire for the native haplochromine cichlid species community of Lake Victoria, which has experienced significant declines in large part due to environmental changes, such as eutrophication, and introduction of the predatory Nile Perch (*Lates niloticus*), and for which the Red List Index (RLI) value declined by 63% between 1960 and 2010.

SPECIES AT RISK FROM CLIMATE CHANGE

The region's freshwater fishes are highly vulnerable to climate change, having high sensitivity, seemingly poor adaptive capacity (primarily relating to lack of dispersal options) and an expected high exposure to change. Given the great importance of this group in supporting human livelihoods, freshwater fishes should be a priority for monitoring and, as appropriate, conservation action to reduce the negative impacts of climate change.

LIVELIHOODS AT RISK

Freshwater fishes are particularly important for provision of food (human and animal), and the Lake Victoria fishery supports household livelihoods of millions of people in the basin. Freshwater plants have diverse uses, including for medicine, food, construction and handicrafts, and constitute an important resource, since many communities either lack access to or cannot afford market goods. Given the high dependence of many people on these species, their sustainable use and conservation is a priority.



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SITES OF IMPORTANCE

KEY BIODIVERSITY AREAS (KBAS)

Key Biodiversity Areas (KBAs) are sites contributing significantly to the global persistence of biodiversity. KBAs inform:

- Potential expansion and management of protected areas networks;
- Identification of sites under international conventions, for example Ramsar sites;
- Environmental policies and safeguards standards.

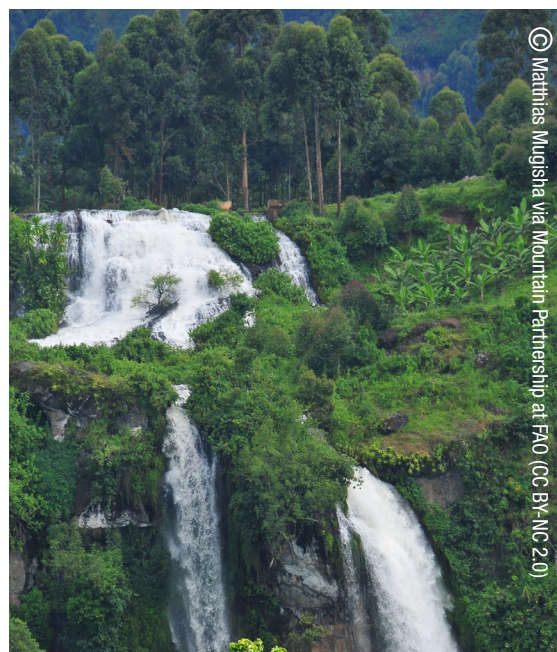
39 sites in the Lake Victoria Basin have been identified as freshwater KBAs.

13 of these freshwater KBAs follow the boundaries of existing protected areas, Ramsar sites or KBAs. However, in most cases freshwater species, with the exception of water birds, are not the focus of conservation and management actions within these sites. Given this new information on freshwater species presence within existing protected areas, efforts are now required to develop new focus on their conservation within site management plans.

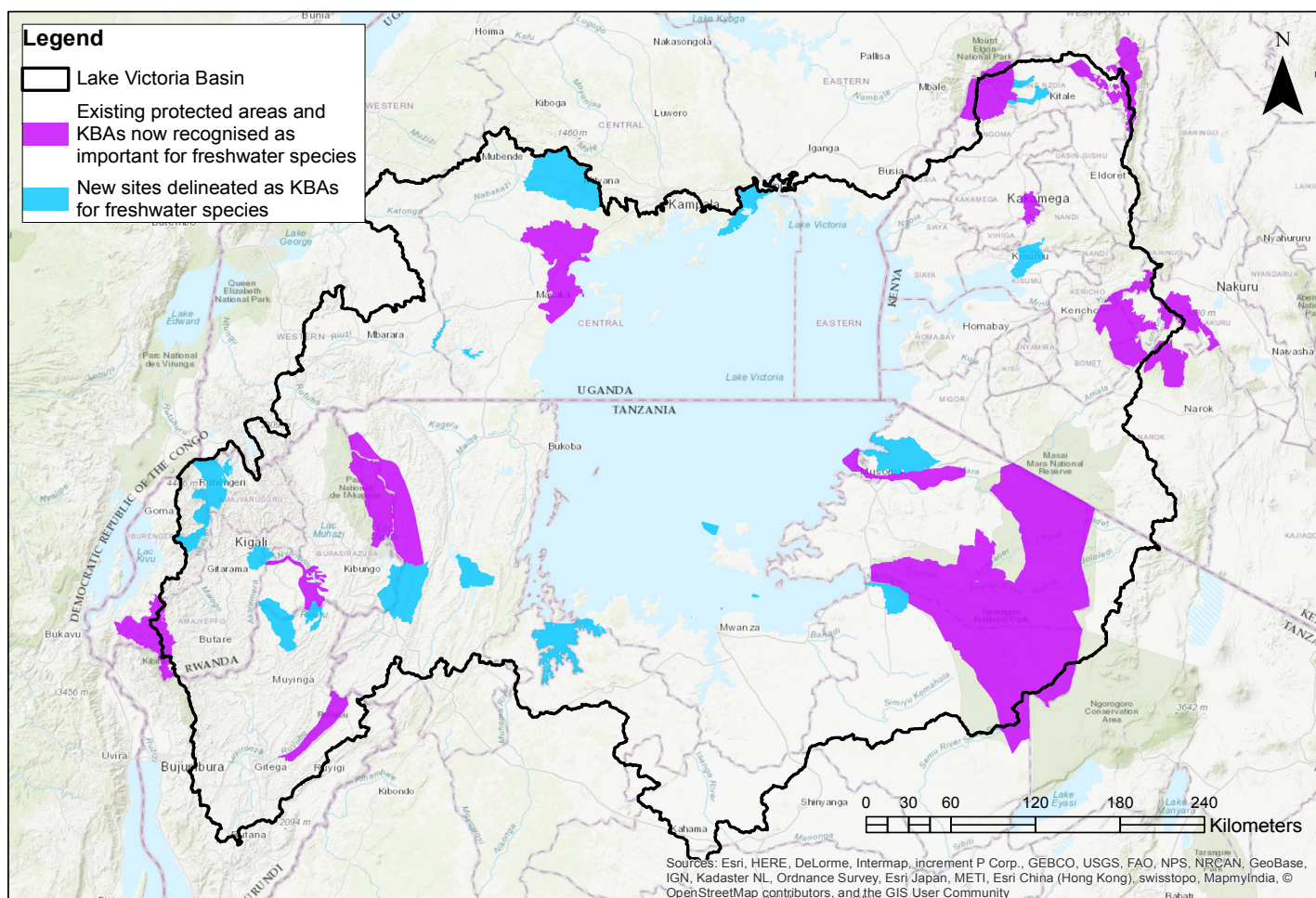
26 new sites have been delineated as freshwater KBAs. These sites represent important gaps in the protection of freshwater species within the current protected areas network.

82 potential Site Champions have been identified. These are individuals and organisations best placed to raise awareness and to help implement actions to safeguard these globally important sites.

These freshwater KBAs represent the first step in developing a regional sites network to better represent freshwater biodiversity. National KBA coordination groups should be established to build upon this work.



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POLICY RECOMMENDATIONS

Multilateral Environmental Agreements (MEAs) – The information presented here can help governments of the countries within the Lake Victoria Basin meet national commitments to the following MEAs:

- > The **Ramsar Convention on Wetlands** through identification of potential new Ramsar sites from KBAs identified for freshwater species.
- > The **Aichi Biodiversity Targets** (in particular Targets 11 and 12) as established by the **Convention on Biological Diversity** through: i) expansion of the protected areas network to better represent freshwater ecosystems; and ii) focussing conservation efforts on currently unprotected threatened freshwater species.
- > The **UN Sustainable Development Goals**, through provision of improved metrics, such as RLIs and KBAs, for measurement of **Sustainable Development Targets** (in particular Targets 6.5, 6.6, 15.1 and 15.5).

Cross-sectorial policies – The information presented here can be integrated by the East African Community (EAC) within cross-sectorial policies, such as:

- > The **EAC Food and Nutrition Security Policy**, which aims to ensure food security and adequate nutrition for people in the East African region. Implementation of this policy might consider:
 - Management for sustainable use and trade of freshwater species identified as important to local livelihoods through use as foods and medicines, as promoted by the 5th EAC Development Strategy with regard to the Agriculture and Food Security sector;
 - Evidence-based action planning and policies on food and nutrition security interventions that account for threatened freshwater species, their habitats and their nutritional values.
- > The **EAC Cross Border Electrification Policy**, which governs the development of shared renewable energy resources, such as small hydropower projects. Implementation of this policy might consider:
 - Regulation of water abstraction for micro- to mega-hydropower projects in sites supporting threatened freshwater species;
 - Implementation of Environmental Flows and Integrated River

Basin Management methodologies to maintain or restore freshwater ecosystems;

- Incorporation of freshwater species Red List assessments and KBA site data into georeferenced databases on hydrology.
- > The **EAC Regional Agriculture Investment Plan (RAIP)**, which is designed to facilitate coordination of regional and crosscutting programmes that are best handled regionally and those that compliment interventions in the **National Agriculture Investment Plans**. One thematic area is promotion of sustainable natural resource use and management, and implementation of this plan might consider:
 - Incorporation of freshwater KBAs as part of the network of conservation areas for consideration in Environmental Impact Assessments (EIAs) before commercial farming is undertaken;
 - Regulation of water abstraction for irrigation projects in areas supporting threatened freshwater species.

Capacity building – Capacity within governments and the EAC must be increased to ensure effective update of this new information on freshwater biodiversity through training in the application of biodiversity datasets to management and enforcement activities.

Environmental safeguards – The list of threatened species and freshwater KBAs provided in the report will inform performance standards and environmental safeguard policies of financial institutions and the private sector to help avoid or minimise impacts of their operations in and around these critical sites for freshwater biodiversity. Efforts should be taken to ensure that this new information is fully utilised within these processes.

Harmonisation of environmental policies – Environmental policy needs to be better integrated and coordinated across sectorial policies, such as energy and agriculture, to avoid contradicting regulatory objectives and inconsistent financial initiatives. Without such coordination freshwater species and ecosystems will continue to decline.

MANAGEMENT RECOMMENDATIONS

Integrated River Basin Management (IRBM) is recommended to better coordinate conservation, management and development planning of water, land and related resources across sectors, and to maximise the economic and social benefits derived from water resources in an equitable manner while preserving and, where necessary, restoring freshwater ecosystems. This includes developing programmes for conservation and management of trans-boundary ecosystems, and governance and management of shared water resources in the region, as promoted by the 5th EAC Development Strategy with regard to the Environment and Natural Resources sector.

Environmental Flows methodologies to maintain the quality, quantity and timing of water flows, in order to sustain freshwater ecosystems and the human livelihoods that depend upon them, need to be adopted by dam management authorities, along with the construction of mechanisms to facilitate passage of fish species.

Habitat reforestation programmes are needed for many wetland systems, in particular in the upper catchments to reduce downstream sedimentation.

Regarding **invasive alien species**, increased efforts are required to trace pathways of introduction in freshwater systems, to prevent future introductions, and to manage or, where feasible, eradicate these species. Relevant information can be found in the Global Invasive Species Database (GISD): www.iucngisd.org/gisd.

Local stakeholder involvement and participatory approaches are key to ensure the legitimacy and the long-term sustainability of conservation actions. Information sharing between regional biodiversity conservation initiatives is also promoted by the 5th EAC Development Strategy with regard to the Environment and Natural Resources sector.

ACCESS THE DATA through the *Integrated Biodiversity Assessment Tool (IBAT)*: www.ibatforbusiness.org (for business); www.ibat-alliance.org/ibat-conservation (for research and conservation)

